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ABSTRACT

Research identified and described the motivational orientations of the participants in the horticultural certificate programs at Longwood Gardens in Pennsylvania. Questionnaires were distributed to paying participants attending the certificate programs in fall 1994. The first part of the questionnaire included the Education Participation Scale (EPS), which assessed the influence of six motivational orientation factors and compared the influence of these factors between participant groups. The questionnaire included demographic questions and assessed the influence of other reasons not included in the EPS. Data analysis included frequency determination, a t-test, and an analysis of variance. Findings indicated that participants attending the certificate programs tended to be women, older, and Caucasian and to have higher levels of socioeconomic status than adult education participants in general. Cognitive interest and professional advancement had the greatest influence of all EPS factors for those participating in the programs. It also appeared that a leisure goal-oriented motivational domain, related to the participants' desire to improve in their home gardening activities, had great influence on the participants' decision to participate. Comparison of the EPS factor scores of participant groups indicated differences between them primarily in professional advancement, external expectations, and cognitive interest. (YLB)

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Motivations for Participation in the Horticultural Certificate Programs at Longwood Gardens

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Introduction

It is evident from motivational research conducted in the field of adult education that there are a variety of reasons for participation in adult education, and that these reasons may vary depending on the demographic characteristics of the learners and the programs they attend. One approach to studying the reasons for participation allows for the assessment of motivational domains called motivational orientation factors. It is from this approach that I based my research focusing on the motivations for participation in the horticultural certificate programs offered at a public horticulture organization.

Purpose

The purpose of my research was to identify and describe the motivational orientations of the participants in the horticultural certificate programs at Longwood Gardens, located near Kennett Square, Pennsylvania. The specific objectives were: to describe characteristics of the participants in terms of demographics, previous participation in the certificate courses, decision to take the course for a certificate, and interest in horticulture for leisure and employment; to determine the influence of different motivational orientation factors on participation; and to determine any

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differences in the influence of the motivational orientation factors between participant groups.

Significance

As market research, this study provides broad direction for the management of horticultural certificate programs, that may contribute to expanding participation and facilitating learning. Possibly more common than motivational research is the assessment of learning needs and interests. It is important, however, to know more about adult learners than their need for knowledge or interest in a subject. In addition, adults are primarily voluntary learners. It is important, therefore, to understand how to attract them to education programs and to develop programs that are congruent with their unique requirements and preferences.

This research provides base line data, as no other research has been identified on this topic. For those offering horticultural certificate programs at public horticulture organizations, the results from this research may be used for comparison with their own audiences. In addition, those desiring to develop new programs may draw from the results and conclusions of this research in assessing what the motivations may be for their potential audience.

Horticultural Certificate Programs

Certificate programs represent one approach to continuing education used by a number of public horticulture organizations. A 1992 institutional survey conducted by the American Association of Botanic Gardens and Arboreta identified 36 public horticulture organizations offering horticultural certificate programs. In writing about the education programs at The New York Botanical Garden, former staff member Arnold Gussin (1990) lists offering certificates as one of the guidelines for successful education programs. According to Gussin (1990, 52), "People are anxious to earn certificates because they represent an important accomplishment."

Longwood Gardens offers two certificate programs as part of its overall continuing education program. Titled the Certificate of Merit in Ornamental Plants Series I and Series II, these programs are designed for amateur and professional gardeners and cover the identification, culture, and landscape use of plants for the Delaware Valley. Each series includes eight courses covering different groups of plants with each six session course offered every other year and periodically as an intensive one week-long course. Together, both series provide the opportunity to learn about approximately 1,040 plants and in 1994 the enrollment in the programs was 1,188. As these programs demonstrate, horticultural certificate programs have the potential to reach many individuals and provide the public with an extensive opportunity for learning.

Motivational Research in Adult Education

There have been a variety of approaches to the study of the motivations for participation in adult education. Two of these approaches include in-depth interviews identifying typologies of learners and factor analytic studies identifying motivational orientation factors.

One of the first and most influential investigations into adults' motivations for participating in learning activities was conducted by Houle (1961), and published in The Inquiring Mind. Through in-depth interviews of 22 active learners, Houle proposed a tree-way typology of learners: goal-oriented, activity-oriented, and learning-oriented. For goal-oriented learners education provides the opportunity to accomplish specific objectives. Those who are activity-oriented participate for the sake of the activity rather than the purpose of developing new knowledge or skills. Those who are learning-oriented engage in learning for its own sake.

Following Houle's investigation into the adult learner, quantitative studies were conducted to further investigate Houle's topology. Rather than trying to identify "types" of learners, these studies identified groups of related reasons for participation

in adult education through factor analysis. One of the instruments used in these studies is the Education Participation Scale (EPS) (Boshier 1982). Through the use of this instrument, six factors were identified as: social contact, social stimulation, community service, professional advancement, external expectations, and cognitive interest (Boshier and Collins 1993). These factors provide partial evidence for Houle's topology, and have been found to relate to demographic variables and vary among demographic groups (Boshier and Collins 1983; Morstain and Smart 1971).

It is through the use of the EPS that the motivational orientations of the participants in the horticultural certificate programs at Longwood Gardens were examined. This instrument, recognized as a valid and reliable method for assessing motivational orientation factors, was selected because it has been used in a number of other research studies and allowed for quantifying the influence of the motivational orientation factors in the programs of study.

Methods

A survey was conducted of the participants attending the certificate programs in the Fall of 1994. Questionnaires were distributed to those attending two Series I and two Series II courses. Staff, volunteers, and students working at Longwood Gardens were excluded from the survey to include only those paying for the course.

The first part of the questionnaire included the EPS, which was used to assess the influence of the six motivational orientation factors and to compare the influence of these factors between participant groups. The EPS includes forty items on a four point scale indicating the level of influence each reason has on the participants decision to enroll in an adult education class. Factor scoring of the EPS items was based on a scoring key reflecting the factor analytic study reported by Boshier and Collins (1983). The following is a description of the six motivational orientation factors.

- **Social contact** reflects a desire to improve or develop relationships with other people.
- **Social stimulation** reflects a need for stimulation as an escape from routine, boring, or frustrating situation.
- **Professional advancement** reflects a desire to improve occupational performance or status.
- **Community service** reflects a humanitarian concern and desire to prepare for participation in community work.
- **External expectations** reflects a desire to enroll based on instructions, suggestions, or recommendations of an individual or organization.
- **Cognitive interest** reflects a desire to learn for the sake of learning.

In addition to the EPS, demographic questions were included with the questionnaire to determine gender, age, race-ethnicity, highest level of school completed, annual household income, and primary occupation. Other characteristics were also determined including: previous participation in the certificate courses, interest in horticulture for leisure or employment, and decision to take the course for a certificate. The influence of other reasons, not included in the EPS, were also assessed including: to participate in an education program with a good reputation, to gain access to the gardens and plant collections, to improve skills and abilities to garden at home, and to prepare for a career change or new career. The importance of these items was assessed, as for the EPS items, on a four point scale.

Analysis of the data was conducted using SPSS for UNIX based on 259 cases and a response rate of 78%. For all participant characteristics, frequencies were determined. Factor scores were calculated, based on the scoring key, for the entire sample and comparison groups. In order to determine statistically significant

differences in factor scores between participant groups, a t-test was used for the comparison of two groups and an Analysis of Variance (ANOVA) was conducted for the comparison of three groups. For the ANOVA, the Tukey test was used to determine differences between specific groups.

Results and Discussion

The results are presented and discussed in four sections, participant characteristics (including demographics and other characteristics), overall EPS factor scores, comparison of EPS factor scores between participant groups, and other reasons for participation.

Participant Characteristics

In terms of demographics (Table 1), over two-thirds of the participants (70.5%) were women, over half (59.8%) were between the ages of 35 and 54, and almost all (98.4%) were Caucasian. Socio-economic indicators revealed that the participants tended to be well educated with a high level of occupational status and annual household income. More than three-quarters (77.6%) of the participants completed some level of post-secondary education. Almost one-half (43.8%) of the participants were in higher level occupations (professional/technical and managerial). It is worth noting, however, that twenty-two percent were homemakers. Annual household income was $40,000 plus for approximately three-quarters (74.9%) of the participants and $100,000 plus for almost one-quarter (23.3%) of the participants.

Comparisons with national statistics of adult education participants reported by the National Center for Educational Statistics (Korb, Chandler, and West 1991) revealed that the participants surveyed in the certificate programs at Longwood Gardens tended to be more frequently women, older, and Caucasian with higher levels of socio-economic status (indicated by education and household income), than adult education participants in general. In addition, the high percentage in professional or

technical occupations identified in the survey of the participants in the certificate programs appears to be typical of adult education participants; however, there does appear to be a higher percentage of those attending who are not in the labor force and are primarily represented by homemakers.

In terms of the other characteristics (Table 2) more than two-thirds (70.4%) of the participants had previously participated in the certificate courses and more than three-quarters (80.6%) were taking the course for a certificate. Almost half (49%) were interested in horticulture for both leisure and employment, less than half (45%) were interested in horticulture primarily for leisure, and six percent were interested in horticulture primarily for employment.

Regarding interest in horticulture for leisure and employment and decision to take the course for a certificate, it is worth noting that the majority (62.2%) of the participants taking the course for a certificate had some degree of employment interest in horticulture, and the majority (69.4%) not taking the course for a certificate had a primarily leisure interest in horticulture. Almost one-third (30.2%), however, was interested in horticulture primarily for leisure and were taking the course for a certificate.

Overall EPS Factor Scores

The EPS factor scores receiving the highest mean score were cognitive interest (3.38) and professional advancement (2.01). The scores were lower for social stimulation (1.74), social contact (1.53), community service (1.52), and external expectations (1.25).

As indicated previously, those scoring high on the cognitive interest want to learn for the sake of learning. Regarding the content of the courses, one might think of these individuals as strongly motivated to learn about plants, their identification, growing requirements, and landscape use. Those scoring high on professional advancement want to gain knowledge, skills, and credentials to improve their job

performance or prepare for a better job. One might think of these individuals as wanting to make themselves more competent or marketable in an employment field related to horticulture.

Comparison of EPS Factor Scores Between Participant Groups

Statistically significant differences were found in the comparison of EPS factor scores between participant groups (Table 3). These differences were found primarily in the professional advancement, external expectation, and cognitive interest factors. The following is a description of some of these differences. Males scored higher on professional advancement and external expectation and lower on cognitive interest. Those in the youngest age group (under 35) scored higher than the older two age groups (35-54 and 55 and over) on professional advancement and external expectations and lower on cognitive interest. Those who had completed education below the post-secondary level scored higher on professional advancement and external expectations and lower on cognitive interest. Those in lower level occupations (clerical/sale, laborer/operator, and crafts/trades) scored higher than those in higher level occupations (professional/technical, and managerial) on professional advancement and external expectations and lower on cognitive interest. Those with incomes under $80,000 scored higher on professional advancement and external expectations than those with higher incomes and those with incomes under $40,000 scored lower on cognitive interest than those with higher incomes. Previous participants in the certificate courses scored higher on cognitive interest than those who had not previously participated. Those taking the course for a certificate scored higher on professional advancement than those who were not taking the course for a certificate. Those interested in horticulture primarily for leisure scored higher on cognitive interest, while those with some degree of employment interest scored higher on professional advancement and external expectations.

Although the differences were not always great between groups, they do indicate the general motivational tendencies of the participants. For cognitive interest differences were found; however, the influence of this factor was the greatest of all factors for all groups. In addition, the comparisons revealed a tendency for those groups scoring higher on cognitive interest to score lower on professional advancement and external expectations, and those groups more motivated by professional advancement also tended to be more motivated by external expectations.

For professional advancement and external expectations, the differences between groups tended to agree with what one might expect in that those who are male, younger, less educated, in lower level occupations, and with lower incomes were the most motivated by professional goal-oriented reasons and more influences by the recommendations of others. The greatest influence of professional advancement and external expectations was for those in the youngest age group.

There were no differences found in the influence of social contact and community service between groups of participants. From a demographic perspective this reveals that differences in gender, age, or indicators of socio-economic status do not appear to account for differences in attending the programs in order to develop social relationships or to prepare for community service.

Other Reasons for Participation

It is important to note that the identification of motivational orientations through factor analysis is dependent on the items included in the scale. It is possible that other reasons for participation and motivational domains may exist.

There may be a leisure goal-oriented domain that is not assessed by the EPS. An additional item included in the questionnaire assessed the importance of improving skills and abilities to garden at home that received a high mean (3.58). For these learners becoming more masterful in gardening, by gaining knowledge and skills to garden at home, may be of primary importance.

The goal-oriented domain of professional advancement was extended by an additional item included with the scale assessing the influence of enrolling in the course to prepare for a career change or new career. This item also received a relatively high mean (2.47).

Another item was included to assess the influence of participating in an education program with a good reputation. Receiving a mean of 3.38, this item highlights the importance of program or institutional reputation in attracting these participants.

In addition, one item assessed the influence of gaining access to the gardens or plant collections. Receiving a relatively high mean (2.87), this finding supports the value of plant collections as part of the educational offering.

Conclusions

As a result of the diversity and complexity of the reasons for participating in adult education it is challenging to understand the motivations for participation in adult education programs. Fortunately, previous research has provided a framework of knowledge and methodology that offers guidance in the process of conducting motivational research. As in this study, motivational domains, represented by the motivational orientation factors, can be assessed through the EPS.

In meeting the first objective of my research, demographic and other characteristics of the participants were described. Comparing the demographics with national statistics I conclude that those attending the certificate programs at Longwood Gardens tend to be more often women, older, Caucasian, with higher levels of socio-economic status (indicated by education and household income) than adult education participants in general.

The second objective was met by using the EPS to assess the influence of different motivational orientation factors. From this assessment, I conclude that

cognitive interest and professional advancement have the greatest influence of all EPS factors for those participating in the certificate programs at Longwood Gardens. This knowledge provides support for the serious and practical nature of the certificate programs at Longwood Gardens, as the people attending these courses are highly motivated to learn and are taking advantage of the courses to make themselves more competent in their job and marketable in their career. In addition, it appears that a leisure goal-oriented motivational domain, related to the participants' desire to improve in their home gardening activities, may exist, which has great influence on the participants' decision to take part in the programs.

By comparing the EPS factor scores of participant groups, the third research objective was met. I conclude that there are differences between participant groups primarily in professional advancement, external expectations, and cognitive interest. Possibly of most practical significance for increasing participation in the certificate programs is that those in the less represented groups (i.e., those who were male, younger, less educated, in lower level occupations, and with lower levels of income) are the most influenced by professional advancement.

I also conclude from this study that the certificate nature of the program is an important component to serving the motivations of the participants, as the majority of those taking the courses are taking them for a certificate. Although this aspect of the program does seem to have more importance to those with a professional goal-oriented motivation, there are a number of those taking the courses for a certificate who are not interested in horticulture for employment. Thus a certificate may serve as a credential for employment purposes or as a symbol of personal accomplishment.

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Table 1 Demographic Characteristics of Participants

Variable	Percent
Gender	
Male	29.5
Female	70.5
Age (mean=44, standard deviation=11.8,	
Under 35	21.8
35-54	61.5
55 and over	16.7
Race-Ethnicity	
Caucasian	98.4
Other (African American, Native American, Latin American)	1.6
Highest Level of Education Completed	
Grade School	.4
High School	18.2
Technical/Vocational	3.9
College	51.2
Graduate School	26.4
Primary Occupation	
Student	2.3
Homemaker	21.9
Retired	6.3
Laborer/Operator	5.1
Crafts/Trades	3.9
Clerical/Sales	5.9
Professional/Technical	35.2
Managerial	8.6
Other	10.9
Annual Household Income	
Under $20,000	7.6
$20,000-$39,999	17.4
$40,000-$59,999	20.3
$60,000-$79,999	19.9
$80,000-$99,999	11.4
$100,000 and over	23.3

(percentages were calculated excluding missing data from non-responses)

Table 2 Other Characteristics of Participants

Variable	Percent
Previous participation in the Certificate Courses at Longwood Gardens	
No previous participation	29.6
Previous participation	70.4
Taking the course for a certificate (for the individual course or series)	
Taking for certificate	80.6
Not taking for certificate	19.4
Interest in horticulture	
Primarily for leisure	45.0
Primarily for employment	6.0
For both leisure and employment	49.0

(percentages were calculated excluding missing data from non-responses)

Table 3 Comparison of EPS Factor Scores Among Participant Groups: Means, Standard Deviations, and Statistical Values

		Social Contact	Social Stimulation	Professional Advancement	Community Service	External Expectations	Cognitive Interest
Gender							
Male	M (SD)	1.54 (.46)	1.65 (.54)	2.24 (.77)	1.50 (.59)	1.36 (.48)	3.11 (.78)
Female	M (SD)	1.52 (.47)	1.77 (.65)	1.92 (.72)	1.53 (.59)	1.20 (.33)	3.49 (.59)
	t value	.23	-1.44	3.17 **	-.37	2.66 **	-3.71 ***
Age							
Under 35	M (SD)	1.63 (.47)	1.70 (.56)	2.54 (.74)	1.57 (.58)	1.51 (.52)	3.15 (.76)
35-54	M (SD)	1.51 (.48)	1.78 (.66)	1.96 (.71)	1.51 (.58)	1.19 (.33)	3.42 (.63)
55 and over	M (SD)	1.53 (.39)	1.68 (.57)	1.56 (.49)	1.53 (.65)	1.16 (.26)	3.49 (.71)
	f ratio	1.43	.63	24.69 ***	.20	16.80 ***	4.03 *
Education							
Below post-secondary	M (SD)	1.48 (.52)	1.58 (.46)	2.36 (.79)	1.51 (.58)	1.39 (.51)	3.14 (.68)
Post-secondary	M (SD)	1.54 (.45)	1.79 (.66)	1.91 (.70)	1.52 (.59)	1.21 (.34)	3.44 (.66)
	t value	-.84	-2.70 **	4.09 ***	-.11	2.53 *	-2.98 **
Occupation							
Homemaker	M (SD)	1.51 (.49)	1.75 (.56)	1.68 (.50)	1.58 (.64)	1.18 (.31)	3.50 (.60)
Lower level	M (SD)	1.45 (.36)	1.58 (.61)	2.39 (.74)	1.43 (.50)	1.42 (.50)	3.08 (.74)
Upper level	M (SD)	1.57 (.46)	1.85 (.64)	2.00 (.76)	1.53 (.58)	1.18 (.26)	3.40 (.63)
	f ratio	1.11	2.76	11.15 ***	.75	8.13 ***	5.01 **
Income							
Under $40,000	M (SD)	1.57 (.48)	1.62 (.61)	2.35 (.76)	1.61 (.67)	1.38 (.47)	3.16 (.74)
$40,000-$79,999	M (SD)	1.55 (.48)	1.80 (.63)	2.09 (.78)	1.50 (.51)	1.28 (.41)	3.39 (.70)
$80,000 and over	M (SD)	1.49 (.46)	1.80 (.64)	1.72 (.59)	1.49 (.63)	1.12 (.28)	3.45 (.62)
	f ratio	.51	1.81	13.03 ***	.90	7.71 ***	3.38 *
Previous participation in certificate courses at Longwood Gardens							
No previous participation	M (SD)	1.48 (.48)	1.71 (.66)	1.87 (.70)	1.48 (.55)	1.26 (.46)	3.21 (.83)
Previous participation	M (SD)	1.55 (.46)	1.75 (.60)	2.07 (.75)	1.54 (.60)	1.24 (.36)	3.45 (.59)
	t value	-1.08	-.52	-1.96	-.67	.30	-2.29 *

Table 3 Continued

		Social Contact	Social Stimulation	Professional Advancement	Community Service	External Expectations	Cognitive Interest
Taking the course for a certificate							
Taking for certificate	M (SD)	1.56 (.48)	1.74 (.62)	2.16 (.73)	1.55 (.60)	1.27 (.40)	3.40 (.64)
Not taking for certificate	M (SD)	1.41 (.40)	1.74 (.56)	1.48 (.55)	1.40 (.54)	1.19 (.34)	3.25 (.80)
	t value	1.97	-.03	7.15 ***	1.52	1.20	1.21
Interest in horticulture							
Primarily for leisure	M (SD)	1.55 (.47)	1.94 (.67)	1.44 (.40)	1.48 (.54)	1.11 (.23)	3.56 (.58)
Primarily for employment or for employment and leisure	M (SD)	1.53 (.47)	1.58 (.52)	2.48 (.64)	1.56 (.63)	1.35 (.45)	3.22 (.72)
	f ratio	.31	4.69 ***	-15.45 ***	-1.10	-5.48 ***	4.10 ***

* p < .05, ** p<.01, *** p<.001 (statistical values calculated excluding small numbers of missing data)